Properties of Light and Electricity
4-5 The student will demonstrate an understanding of the properties of light and electricity. (Physical Science)

4-5.5 Explain how electricity, as a form of energy, can be transformed into other forms of energy (including light, heat, and sound).
   Taxonomy level: 2.7-B   Understand Conceptual Knowledge

Previous/Future knowledge: Students have not been introduced to the concept of electricity and energy changing from one form to another including electricity, light, heat, and sound in previous grades. In 6th grade (6-5.1, 2), they will further develop the concepts of transformation and conservation of energy.

It is essential for students to know that electricity is a form of energy that can be cause change and be changed into other forms of energy. For example:

Light
- Electrical energy can be changed to *light energy* with light bulbs in lamps, televisions, and computer monitors.

Heat
- Electrical energy can be changed to *heat energy* in stoves, toasters, and ovens.

Sound
- Electrical energy can be changed to *sound energy* with radios and televisions.

It is not essential for students to know the reasons why the electrical energy is being changed, only that it is being changed by identifying *devices* that do change the energy to other forms.

Assessment Guidelines:
The objective of this indicator is to *explain* how electrical energy can be changed to other forms of energy, for example, light, heat, and sound; therefore, the primary focus of assessment should be to construct a cause-and-effect model showing devices that change electrical energy to light, heat, or sound. However, appropriate assessments should also require students to *interpret* a diagram of or *illustrate* various electrical devices showing energy transformations; *compare* electrical devices as to the types of energy transformations that take place; or *recognize* an electrical device that transforms electrical energy into light or heat or sound.